

Notes on the genus *Neokoehleria* (Orchidaceae) and description of a new species from Ecuador

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Summary: A new species of the Neotropical orchid genus *Neokoehleria* is described and illustrated based on Ecuadorian material. It appears to be similar to *N. equitans* Schltr. and *N. kerspei* Senghas, but it can easily be distinguished by its petals which are shorter than the dorsal sepal, elongated lip spurs and the lip's epichile which is longer than the hypochile.

Keywords: flora of Ecuador, Orchidaceae, new species, Neotropics, *Neokoehleria*, taxonomy

The orchid genus *Neokoehleria*, established by SCHLECHTER (1915), is one of the taxa included in the *Rodriguezia* clade. The taxonomic position and generic delimitation within this Neotropical group have been widely discussed over the years. Several authors placed it within different subtribes: Ionopsidinae Pfitzer (PFITZER 1889; SENGHAS 1995), Comparettinae Schltr. (SCHLECHTER 1915; SZLACHETKO 1995) or in a broad concept of Oncidiinae (DRESSLER 1981; CHASE et al. 2003). As the representatives of *Neokoehleria* share some morphological features with other genera, i.e., *Scelochilus* Klotzsch and *Comparettia* Poepp. & Endl., its separateness was questioned by some authors. SCHLECHTER (1915) treated *Neokoehleria*, *Scelochilus* and *Comparettia* as three distinctive genera. DODSON & CHASE (1993) denied the name *Neokoehleria* and combined plants previously placed under this name with *Scelochilus*. They ignored the significant morphological differences between these two groups such as the structure of the gynostemium, which is malleolate (*Neokoehleria*) or erect / slightly sigmoid (*Scelochilus*), as well as the lip form. The lip of *Neokoehleria* is adorned with a pair of lamellae and the globular appendages on the terminal parts of the lip base. On the other hand, the lip of *Scelochilus* is ornamented with one or two pairs of horn-like appendages, but there is a lack of lamellae at its surface. Moreover, the terminal parts of the lip base are linear (SZLACHETKO & KOLANOWSKA 2015). The broad concept of *Scelochilus* was denied by SENGHAS (1995) and KÖNIGER (2008). CHASE et al. (2008) went a step further: they included *Scelochilus* and *Neokoehleria* into *Comparettia*. DODSON (1998) postulated to separate *Neokoehleria* and *Scelochilus* due to the differences in shape of the sepaline spur in *Neokoehleria* (club-shaped) and in *Scelochilus* (conical-shaped). Based on molecular data, CHASE et al. (2008) presented a new approach for treatment of *Comparettia*. The authors grouped *Chaenanthus* Lindl., *Diadenium* Poepp. & Endl., *Scelochilopsis* Dodson & M.W. Chase, *Scelochilus*, *Stigmatorthos* M.W. Chase & D.E. Benn., *Scelochiloides* Dodson & M.W. Chase, *Pfitzeria* Senghas as well as *Neokoehleria* in *Comparettia* s. latiss. In this approach, the latter genus is a paraphyletic taxon based on molecular data (NEUBIG et al. 2012).

Due to the morphological differences supported by the molecular evidences, we believe that *Neokoehleria* should be kept separately from *Scelochilus* (Table 1) and obviously also from *Comparettia*. In a narrow concept, the genus is represented by small, epiphytic plants with ellipsoid and unifoliate pseudobulbs. Its fleshy leaves are narrowly linear, acuminate and petiolate-

Table 1. Comparative morphology of *Scelochilus* and *Neokoehleria*.

	<i>Scelochilus</i>	<i>Neokoehleria</i>
Pseudobulbs	cylindric, unifoliate, somewhat hidden by the subtending non-foliaceous sheaths	ovoid-cylindric, unifoliate, enveloped basally by 2 to 3 non-foliaceous sheaths
Leaves	ovate to lanceolate-ovate	lanceolate
Inflorescence	racemose or paniculate	racemose
Lateral sepals	variously connate	united to the apex
Lip	extended to a didymous spur	extended to a didymous spur
Lip lamina	with one or two pairs of lamellae	with one pair of lamellae
Gynostemium	erect, glabrous	malleolate, glabrous
Stigma	elliptic to obtriangular-obovate	oblong to transversely elliptic
Tegula	oblong to obovate-triangular	linear
Pollinium	obliquely obovoid, shallowly cleft	obliquely ellipsoid

narrowed at the base. The lateral inflorescence is almost as long as the leaf, simple or branched, with up to 30 flowers. The flowers are small and little-opened. The dorsal sepal is oblong to elliptic and rounded at the apex. Lateral sepals connate into a broadly ovate, bidentate lamina about half as long as the dorsal sepal, producing a stout, slightly emarginate spur which is more or less equal to the lamina. Obliquely and broadly obovate petals are slightly shorter, but distinctly wider than the dorsal sepal, minutely apiculated at the rounded apex. The lip is rounded at the apex, ligulate to cuneate with lateral margins irregularly lacerate-fimbriate above the middle. A pair of linear-clavate spurs is presented. The lip is adorned with a pair of erect keels (SCHWEINFURTH 1970). The gynostemium is slender and widened near the stigma and more or less bend back. Column part is about 5–6 times longer than the anther. The column foot is short. The subapical, dorsiventrally flattened anther is incumbent, operculate, ellipsoid and obscurely 2-chambered. The connective is narrow and thin. Two hard pollinia are slightly dorsiventrally compressed, obliquely ellipsoid and uniporate at the apex or unequally cleft. The caudicula is sticky and amorphous. The apical clinandrium is obscure. The oblong to transversely elliptic stigma is small or large, concave and partially hidden by pendent, ligulate and blunt rostellum, the remnant of which is canaliculate on the outer surface, with an oblique and slightly concave, apical plate. The single, thin, oblong to lanceolate viscidium is present. Single, linear tegula is thin and lamellate (SZLACHETKO & MYTNIK-EJSMONT 2009).

During recent studies on oncidoid orchids, we came across the distinctive species of *Neokoehleria*, which is described here as new.

Description and taxonomy

Neokoehleria alexii Szlach., Kolan. & Olędrz., sp. nov. (Fig. 1)

Diagnosis. Species similar to *N. equitans* and *N. kerspei*, but with petals shorter than dorsal sepal, elongated lip spurs and lip epichile longer than hypochile.

New *Neokoehleria* from Ecuador

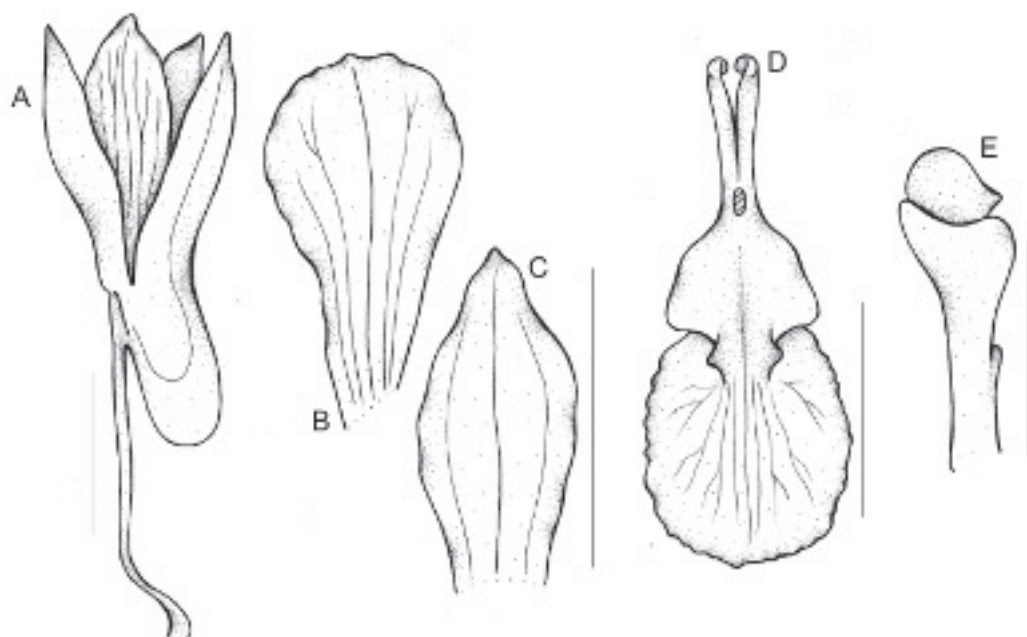


Figure 1. *Neokoehleria alexii*. A – flower, B – petal, C – dorsal sepal, D – lip, E – gynostemium. Scale bars = 3 mm.

Holotype. Ecuador. Prov. Napo. Along the road from Cotundo to Hollin to Loreto. Alt. 1000 m. Nov 1988. *Hirtz 3918* [RPSC].

Etymology. This species is dedicated to Alexander Hirtz, who collected the type specimen.

Description. Pseudobulbs 1 cm long, 0.2 cm wide, cylindrical, unifoliate; subtended by 1–2 foliaceous sheaths. Leaf 6.5 cm long, 0.9 cm wide, lanceolate. Inflorescence 5 cm long, 5-flowered, branched, branches up to 1 cm long. Flowers small, sepals pinkish green, petals and lip pink. Pedicellate ovary 7 mm long. Floral bract 3 mm long. Dorsal sepal 4.3 mm long, 2 mm wide, elliptic, obtuse, 3-veined. Petals 4.2 mm long, 2.4 mm wide, obliquely obovate, acute, primarily 5-veined, margins crenate. Lateral sepals connate forming a sepaline spur 2.5 mm long, 1 mm wide, free part 4 mm long. Lip extended to a didymous spur, bipartite; spur 2.5 mm long, thick; hypochile 1.6 mm long and wide, bilobed, lobules obliquely triangular, rounded; epichile 2.2 mm long and wide, oval, acute, with denticulate margins; two additional small, auricular lobules observed between epichile and hypochile. Gynostemium 3.5 mm long.

Ecology. Epiphyte, growing at an altitude of about 1000 m. Flowering in November.

Notes. This species resembles *N. equitans* and *N. kerspei*, but is distinguishable by the petals shorter than dorsal sepal, the elongated lip spurs and the lip epichile being longer than the hypochile. Unlike in *N. penduliflora* Senghas & Thiv, there is no distinct isthmus between the lip epichile and hypochile.

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